Embedded Computing for
Business-Critical Continuity™

RTM-ATCA7301

Installation and Use

P/N: 6806800K95A

May 2010

EMERSON.
Network Power

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About this Manual

Overview of Contents

This manual is divided into the following chapters and appendices.

- *About this Manual* on page 9 lists all conventions and abbreviations used in this manual and outlines the revision history.
- *Safety Notes* on page 45 describes the safety information which has to be regarded.
- *Sicherheitshinweise* on page 49 provides a German translation of the chapter "Safety Notes".
- *Introduction* on page 13 gives an overview of the product.
- *Hardware Preparation and Installation* on page 17 describes the exchange prerequisites and procedures.
- *Controls, LEDs and Connectors* on page 29 describes external interfaces of the blade. This includes connectors and LEDs.
- *Functional Description* on page 41 describes in more detail functional blocks of the product.
- *Related Documentation* on page 43 lists related documentation and specifications.

Abbreviations

This document uses the following abbreviations:

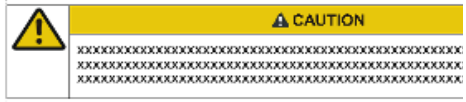
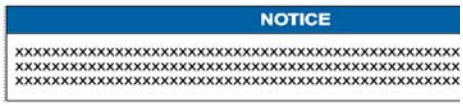
Abbreviation	Definition
AdvancedTCA	Advanced Telecom Computing Architecture (tm)
AMC	Advanced Mezzanine Card
ARTM	Advanced Rear Transition Module
BMC	Baseboard Management Controller
CISPR	Comité Internationale Spécial des Perturbations Radioelectrotechnique (International Special Committee on Radio Interference, IEC)
EMC	Electromagnetic Compatibility
EMV	Elektromagnetische Verträglichkeit
EN	European Norm
ESD	Electrostatic Discharge

Abbreviation	Definition
ETSI	European Telecom Standards Institute
FAE	Field Application Engineer
FCC	Federal Communications Commission
FRU	Field Replaceable Unit
GA	General Availability
HD	Hard Disk
H/S	Hot Swap
IEC	International Electric Code/
IPMC	Intelligent Platform Management Interface Controller
IPMI	Intelligent Platform Management Interface
LED	Light Emitting Diode
LUN	Logical Unit Number
MMC	Mezzanine Management Controller
NEBS	Network Equipment Building System
OOS	Out Of Service
OS	Operating System
PCB	Printed Circuit Board
PCI	Peripheral Component Interconnect
PICMG	PCI Industrial Computer Manufacturers Group
RoHS	Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment
RTM	Rear Transition Module
SELV	Safety Extra Low Voltage
SCSI	Small Computer System Interface
TPE	Twisted-Pair Ethernet
UL	Underwriters Laboratory
USB	Universal Serial Bus
VCCI	Voluntary Control Council for Interference

Conventions

The following table describes the conventions used throughout this manual.

Notation	Description
0x00000000	Typical notation for hexadecimal numbers (digits are 0 through F), for example used for addresses and offsets
0b0000	Same for binary numbers (digits are 0 and 1)
bold	Used to emphasize a word
`Screen`	Used for on-screen output and code related elements or commands in body text
`Courier + Bold`	Used to characterize user input and to separate it from system output
Reference	Used for references and for table and figure descriptions
File > Exit	Notation for selecting a submenu
<text>	Notation for variables and keys
[text]	Notation for software buttons to click on the screen and parameter description
...	Repeated item for example node 1, node 2, ..., node 12
. . .	Omission of information from example/command that is not necessary at the time being
..	Ranges, for example: 0..4 means one of the integers 0,1,2,3, and 4 (used in registers)
|	Logical OR

Notation	Description
	Indicates a hazardous situation which, if not avoided, could result in death or serious injury
	Indicates a hazardous situation which, if not avoided, may result in minor or moderate injury
	Indicates a property damage message
	No danger encountered. Pay attention to important information

Summary of Changes

This manual has been revised and replaces all prior editions.

Part Number	Publication Date	Description
6806800K95A	May 2010	GA version

Comments and Suggestions

We welcome and appreciate your comments on our documentation. We want to know what you think about our manuals and how we can make them better.

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In "Area of Interest" select "Technical Documentation". Be sure to include the title, part number, and revision of the manual and tell us how you used it.

1.1 Features

The RTM-ATCA7301 is a rear transition module as defined in *PICMG 3.0 Revision 2.0 AdvancedTCA Base Specification* and *PICMG 3.1 Revision 1.0 Specification Ethernet/Fiber Channel for AdvancedTCA Systems*. It provides several Ethernet interfaces connected to the front blade via the Zone 3 connector.

It provides the following features:

- Two 10/100/1000 Base-T Ethernet interfaces with separate SMD RJ-45 connectors
- Onboard SAS controller supporting four SAS ports
- Two SAS ports toward AMC bay 1
- Two SAS ports on face plate connector
- One RS-232 interface with mini DB9 connector on face plate
- One USB2.0 port on face plate
- Hot-plug in ability
- Module management according to IPMI specification 2.0
- Four user LEDs at the face plate
- Reset button at the face plate
- Onboard 2.5" SAS hard disk drive (HDD) mounting option
- Up to eight E1/T1 ports (four from each AMC bay) supporting transformers and prim/sec protection circuitry

1.2 Standard Compliances

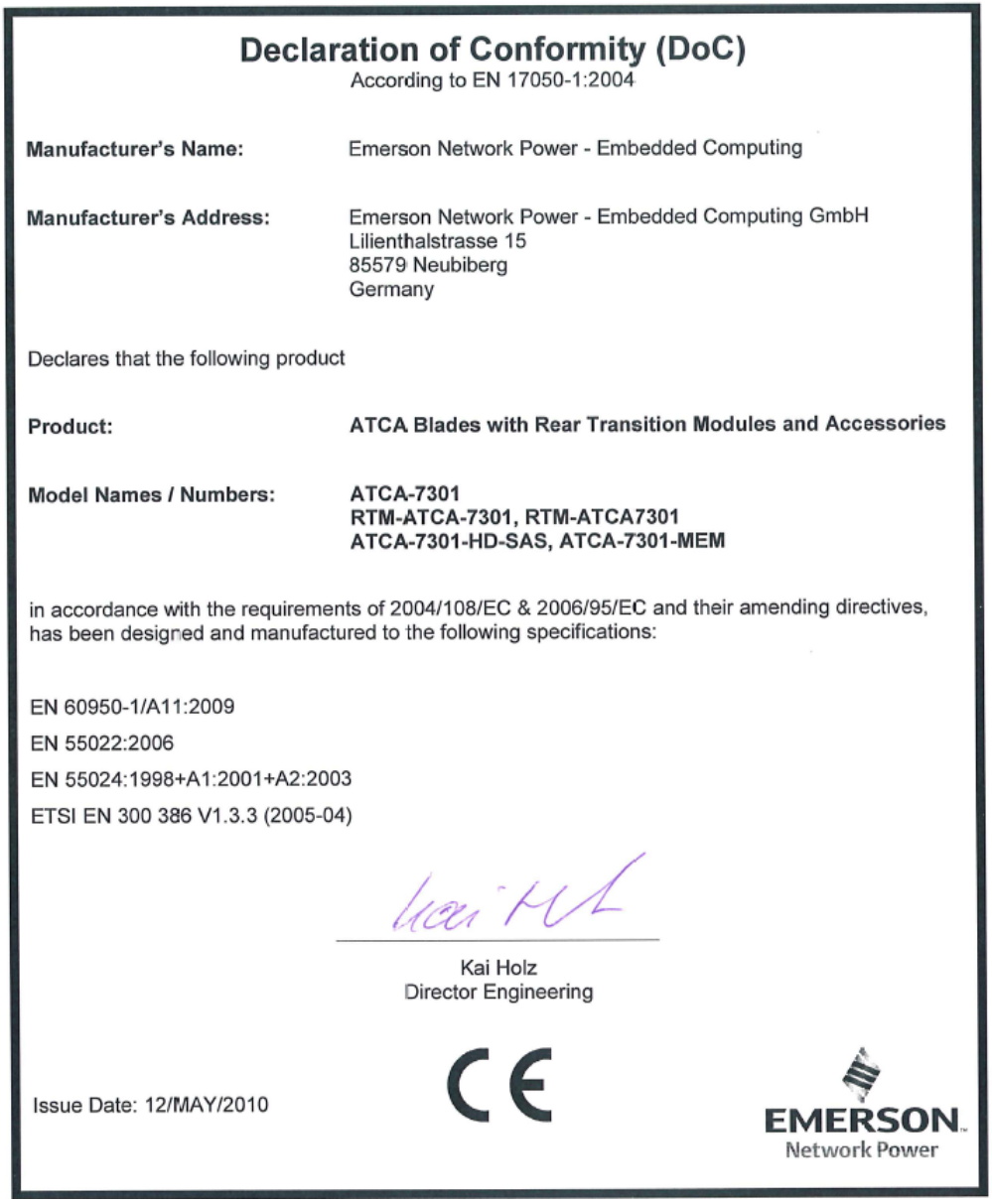
This product meets the following standards.

Table 1-1 Standard Compliances

Standard	Description
UL 60950-1 EN 60950-1 IEC 60950-1 CAN/CSA C22.2 No 60950-1	Legal safety requirements
CISPR 22 CISPR 24 EN 55022 EN 55024 FCC Part 15 Industry Canada ICES-003 VCCI Japan AS/NZS CISPR 22 EN 300 386 NEBS Standard GR-1089 CORE	EMC requirements (legal) on system level (predefined Emerson system)
NEBS Standard GR-63-CORE ETSI EN 300019 series	Environmental requirements
PICMG 3.0	Defines mechanics, blade dimensions, power distribution, power and data connectors, and system management
PICMG 3.1	Defines Ethernet on AdvancedTCA data transport

The product has been designed to meet the directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) Directive 2002/95/EC.

Figure 1-1 Declaration of Conformity



Declaration of Conformity (DoC)

According to EN 17050-1:2004

Manufacturer's Name: Emerson Network Power - Embedded Computing

Manufacturer's Address: Emerson Network Power - Embedded Computing GmbH
Lilienthalstrasse 15
85579 Neubiberg
Germany

Declares that the following product

Product: **ATCA Blades with Rear Transition Modules and Accessories**

Model Names / Numbers: **ATCA-7301**
RTM-ATCA-7301, RTM-ATCA7301
ATCA-7301-HD-SAS, ATCA-7301-MEM

in accordance with the requirements of 2004/108/EC & 2006/95/EC and their amending directives, has been designed and manufactured to the following specifications:

EN 60950-1/A11:2009

EN 55022:2006

EN 55024:1998+A1:2001+A2:2003

ETSI EN 300 386 V1.3.3 (2005-04)

Kai Holz
Director Engineering

Issue Date: 12/MAY/2010

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1.3 Mechanical Data

The following table provides details on the blade's mechanical data.

Table 1-2 Mechanical Data

Data Type	Value
Dimension (length x width x height)	322.3 mm x 70 mm x 29 mm
Weight	0.6 kg

1.4 Ordering Information

As of the printing date of this manual, this guide supports the boards models listed below.

Table 1-3 Order Numbers

Order Number	Description
RTM-ATCA-7301	Rear transition module with eight E1/T1 ports and onboard hard disk for ATCA-7301 blade (RoHS 6/6) Note: This product is EOL. Please contact our sales representatives for further details.
RTM-ATCA7301	Rear transition module onboard hard disk for ATCA-7301 blade (RoHS 6/6)
ATCA-7301-HD-SAS	147GB SAS HDD for the RTM

2.1 Overview

This chapter describes:

- Unpacking and inspecting the module
- Environmental and power requirements
- Module installation and removal

2.2 Unpacking and Inspecting the Module

NOTICE

Damage of Circuits
Electrostatic discharge and incorrect installation and removal of the blade can damage circuits or shorten their life.
Before touching the blade or electronic components, make sure that your are working in an ESD-safe environment.

Shipment Inspection

To inspect the shipment, perform the following steps.

1. Verify that you have received all items of your shipment:
   Printed user manual
   RTM-ATCA7301 module
   Any optional items ordered
2. Check for damage and report any damage or differences to the customer service.

3. Remove the desiccant bag shipped together with the blade and dispose of it according to your country's legislation.

The blade is thoroughly inspected before shipment. If any damage occurred during transportation or any items are missing, please contact our customer's service immediately.

2.3 Environmental and Power Requirements

The following environmental and power requirements are applicable to the blade.

2.3.1 Environmental Requirements

You must make sure that the blade, when operated in your particular system configuration, meets the environmental requirements specified below.

Operating temperatures refer to the temperature of the air circulating around the blade and not to the component temperature.

NOTICE

Product Damage
Surface of the Product
High humidity and condensation on the product surface causes short circuits.
Do not operate the product outside the specified environmental limits. Make sure the product is completely dry and there is no moisture on any surface before applying power.

Table 2-1 Environmental Requirements

Requirement	Operating	Non-Operating
Temperature	+5ºC (41°F) to +40ºC (104°F) (normal operation) according to NEBS Standard GR-63-CORE -5ºC (23°F) to +55ºC (131°F) (exceptional operation) according to NEBS Standard GR-63-CORE	-40ºC (-40°F) to +70ºC (158°F) (may be further limited by installed accessories)
Temp. change	+/- 0.25°C/min according to NEBS Standard GR-63-CORE	+/- 0.25°C/min
Rel. humidity	5% to 90% non-condensing according to Emerson-internal environmental requirements	5% to 95% non-condensing according to Emerson-internal environmental requirements
Vibration	0.1 g from 5 to 100 Hz and back to 5 Hz at a rate of 0.1 octave/minute	5-20 Hz at 0.01 g^2/Hz 20-200 Hz at -3.0 dB/octave Random 5-20 Hz at 1 m^2/Sec^3 Random 20-200 Hz at -3 m/Sec^2
Shock	Half-sine, 11 m/Sec, 30 $mSec/Sec^2$	Blade level packaging Half-sine, 6 mSec at 180 m/Sec^2
Free fall	-	1,200 mm/all edges and corners 1.0 m (packaged) per ETSI 300 019-2-2 (blade level packaging) 100 mm (unpacked) per GR-63-CORE

During the safety qualification of this blade, the following on-board locations were identified as critical with regards to the maximum temperature during blade operation. To guarantee proper blade operation and to ensure safety, you have to make sure that the temperatures at the locations specified in the following are not exceeded. If not stated otherwise, the temperatures should be measured by placing a sensor exactly at the given locations. For your convenience all temperature spots are shown in the following figure that provides a detailed

view of the blade.

Figure 2-1 Critical Temperature Spots on the RTM-ATCA7301/HDD

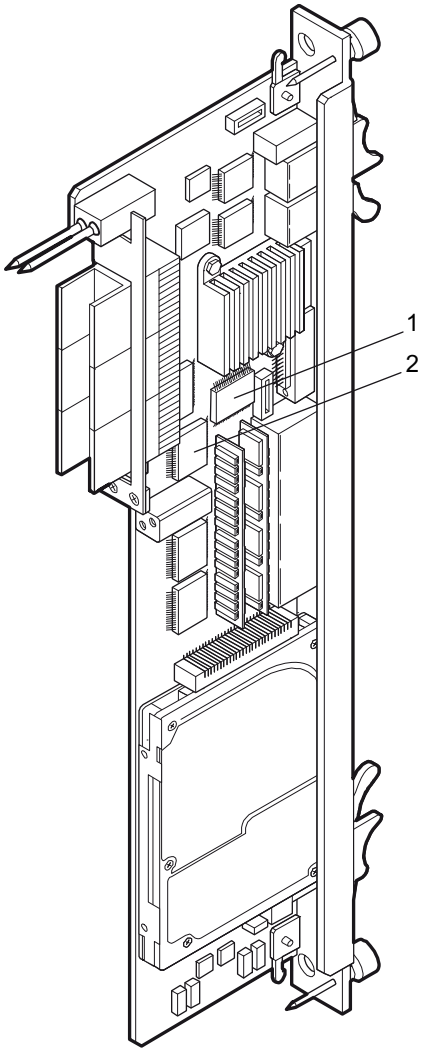


Table 2-2 Critical Temperature Limits

Location	Temperature	Description
1	+90°C/+194°F	Transformer housing
2	+90°C/+194°F	Transformer housing

If you integrate the blade in your own system please contact your local sales representative for further safety information.

2.3.2 Power Requirements

The RTM gets safety-extra-low-voltage (SELV) power from the front blade.

2.4 Module Installation and Removal

The RTM must be installed into a AdvancedTCA system without a zone 3 midplane.

The RTM provides support for basic hot-swap, that means it can be installed, removed and replaced in a powered system. However, after the RTM is installed or replaced in a powered system the front blade has to be rebooted so that the OS can recognize the SAS controller or other PCI devices located on the RTM.

NOTICE

RTM Damage
Installing the RTM with other blades than the ATCA-7301 may damage the RTM and the front blade.
Only install the RTM with the Emerson ATCA-7301 blade.

Damage of Circuits
Electrostatic discharge and incorrect RTM installation and removal can damage circuits or shorten their life.
Before touching the RTM or electronic components, make sure that you are working in an ESD-safe environment.

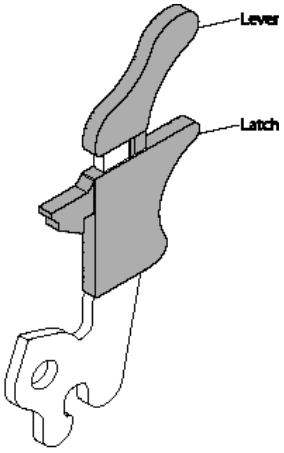
Date Loss
If you remove the RTM from a powered system, data that is in the process of being written to the hard disk located on the RTM may be lost.
Disconnect the RTM hard disk from OS services before removing the RTM from a powered system.

2.4.1 Installing the RTM

Installation Procedure

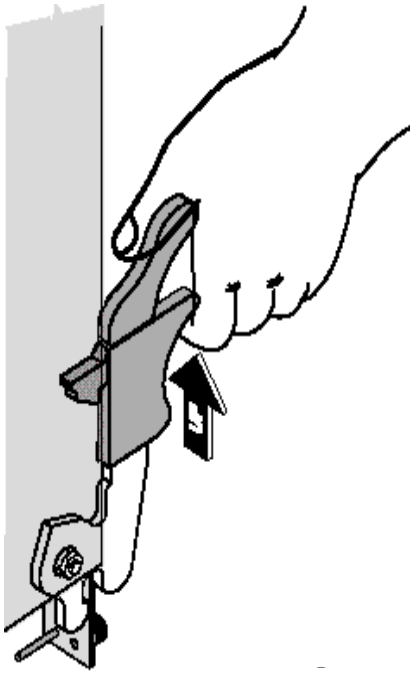
The following procedure describes the installation of the RTM. It assumes that your system is powered. If your system is unpowered, you can disregard the blue LED and thus skip the respective step. In this case it is a purely mechanical installation.

1. Locate the slot the RTM is to be installed into the shelf's rear which must be the same as that of the front blade.
2. Ensure that the top and the bottom handles of the RTM are in an outward position by squeezing the lever and the latch together.



3. Insert the RTM into the shelf by placing the top and bottom edges in the card guides of the slot.
4. Slide the RTM into the slot.
5. Apply equal and steady pressure to the RTM to carefully slide the RTM into the shelf until you feel resistance. Continue to gently push the RTM until the RTM connectors engage.
6. Squeeze the lever and the latch together and hook the lower and the upper handle into the shelf rail recesses.

7. Fully insert the RTM and lock it to the shelf by pressing the two components of the lower and the upper handles together and turning the handles toward the face plate.



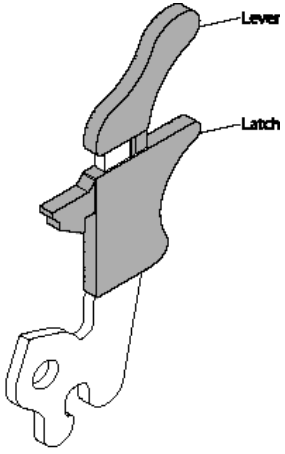
8. Tighten both face plate screws on the RTM.
9. Wait until the blue LED on the RTM is OFF.
   A switched off blue LED indicates that the payload of the RTM has become active.
10. Plug interface cable into face plate connectors, if applicable.
11. Reboot the front blade.
    This is necessary so that the OS of the front blade can recognize the SAS controller or any other PCI device located on the RTM.

2.4.2 Removing the RTM

Removal Procedure

The following procedure describes the removal of the RTM. It assumes that your system is powered. If your system is unpowered, you can disregard the blue LED and thus skip the respective step. In this case it is a purely mechanical procedure.

1. Unlatch the lower handle outward by squeezing the lever and the latch together and turning the handle outward only enough to unlatch the handle from the face plate, that means until you feel a resistance. Do not rotate the handle fully outward. The blue LED blinks indicating that the shelf manager is informed about the desire of the blade to power down the payload of both the front blade and the RTM and the power-down process is ongoing.



2. Wait until the blue LED of the RTM is permanently ON.
   A permanently switched ON LED indicates that the payload of the RTM has been powered down.
3. Remove interface cables from face plate connectors, if applicable.
4. Loosen the two RTM face plate screws.

5. Unlatch the upper handle and rotate both handles fully outward.
6. Remove the RTM from the slot.

3.1 Overview

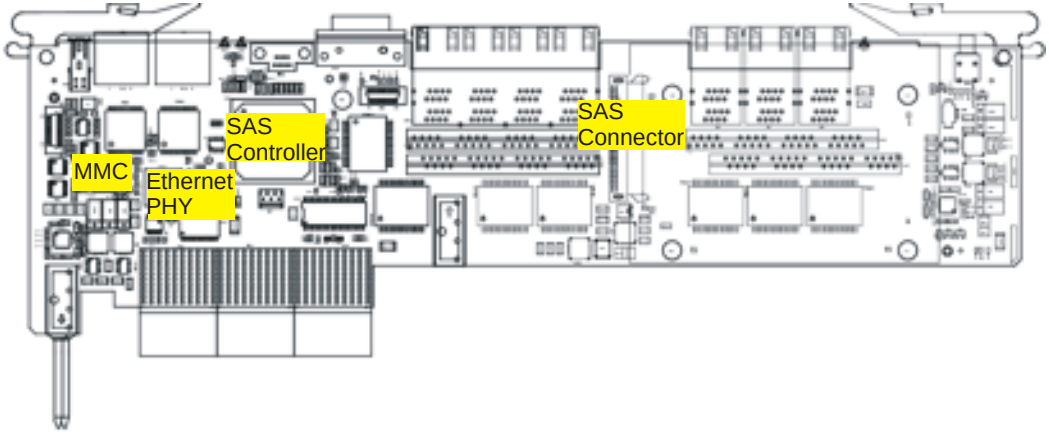
This chapter describes:

- Mechanical layout
- Face plate interfaces
- Onboard connectors

3.2 Blade Layout

The following figure provides an overview of the mechanical layout of the blade.

Figure 3-1 Mechanical Layout



3.3 Face Plate Connectors and LEDs

This section describes the connectors and LEDs of the RTM's face plate.

Figure 3-2 Face Plate

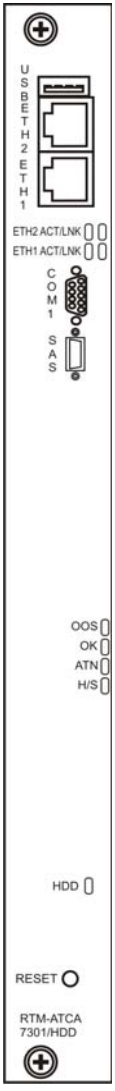
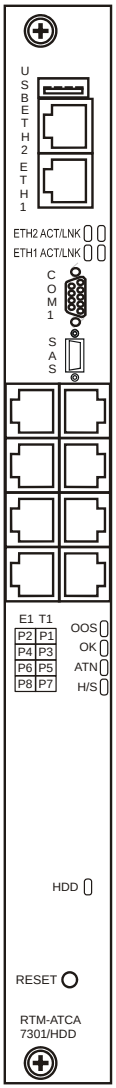


Figure 3-3 Face Plate with optional E1/T1 Connectors



3.3.1 Face Plate Connectors

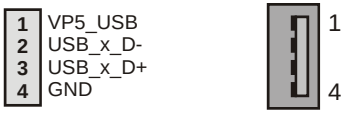
The following interfaces are available on the face plate:

- One USB 2.0 connector
- Two 10/100/1000 Base-T Ethernet connectors
- One serial connector
- One SAS connector
- Eight (HDD variant) E1/T1 RJ-45 connectors

3.3.1.1 USB Connector

The USB 2.0 interface can be used for connecting a keyboard, an USB memory stick, an USB CD-ROM drive or other USB devices. The pin assignment of the USB connector is given in the following figure.

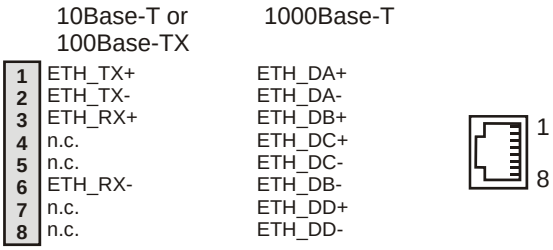
Figure 3-4 USB Connector Pinout



3.3.1.2 Ethernet Connectors

The Ethernet connectors ETH 1/2 can be used for connecting other Ethernet devices. The pin assignment of the Ethernet connectors is given in the following figure.

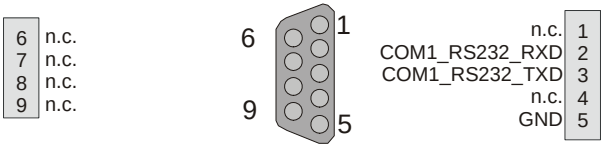
Figure 3-5 Ethernet Connector Pinout



3.3.1.3 Serial Connector

The serial connector COM1 can be used for connecting a console. The pin assignment of the serial connector is given in the following figure.

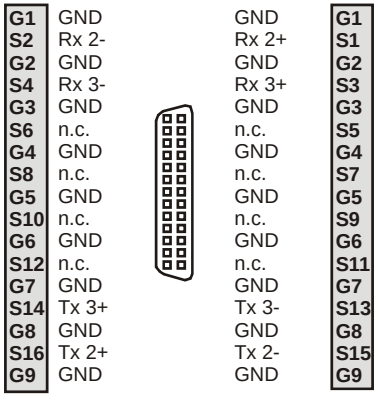
Figure 3-6 Serial Connector Pinout



3.3.1.4 SAS Connector

The SAS connector can be used for connecting an external SAS disk or for creating a redundant RTM configuration. The pin assignment of the SAS connector is given in the following figure.

Figure 3-7 SAS Connector Pinout



3.3.1.5 E1/T1 Connectors

The pin assignment of the E1/T1 connectors is given in the following figure.

Figure 3-8 E1/T1 Connector Pinout

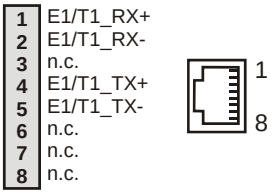


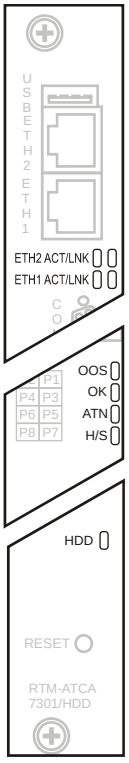
Table 3-1 Mapping E1/T1 Connectors - AMC Ports on ATCA-7301

E1/T1 Connector	AMC Port
1	AMC B4 Port 17
2	AMC B1 Port 17
3	AMC B4 Port 18
4	AMC B1 Port 18
5	AMC B4 Port 19
6	AMC B1 Port 19
7	AMC B4 Port 20
8	AMC B1 Port 20

3.3.2 Face Plate LEDs

The following figure highlights the LEDs available on the face plate.

Figure 3-9 Location of Face Plate LEDs



The following table describes the meaning of the LEDs.

Table 3-2 Face Plate LEDs

Name	Color	Description
ETHx ACT	Yellow	Indicates activity on Ethernet port
ETHx LNK	Green	Indicates link on Ethernet port
HDD	Green	Indicates access or activity on onboard SAS hard disk

Table 3-2 Face Plate LEDs (continued)

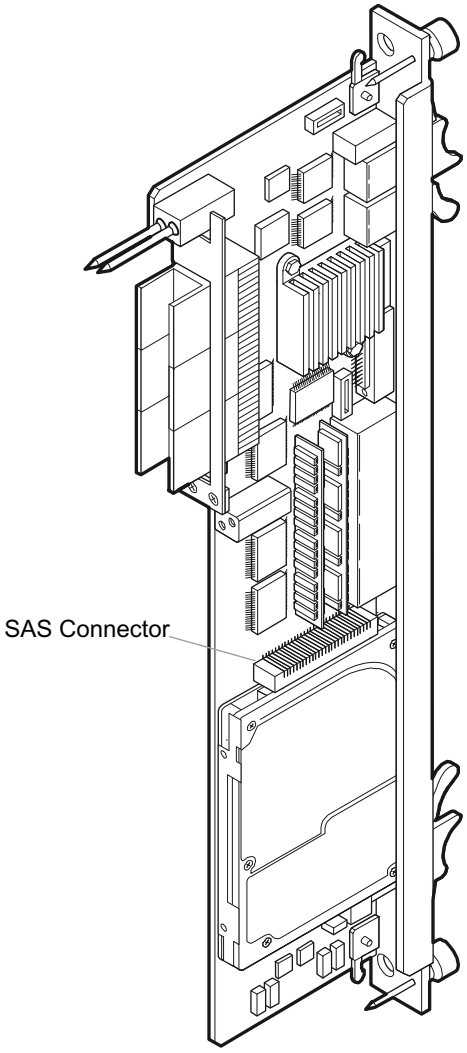
Name	Color	Description
OOS	Red	Out Of Service This LED is controlled by higher layer software, such as middleware or applications.
OK	Green	Payload Power Status Green: The payload power has been enabled by the IPMC. Note that this LED indicates the payload power status both in the early power state and the normal blade operation. OFF: Payload power is disabled.
ATN	Amber	Attention This LED is controlled by higher layer software, such as middleware or applications.
H/S	Blue	FRU State Machine **During blade installation:** Permanently blue: On-board IPMC powers up. Blinking blue: Blade communicates with shelf manager. OFF: Blade is active. **During blade removal:** Blinking blue: Blade notifies shelf manager of its desire to deactivate. Permanently blue: Blade is ready to be extracted.

3.4 Onboard Connectors

The HD variant of the RTM provides an onboard Serial Attached SCSI (SAS) connector. The SAS connector allows to install an onboard 2.5" SAS hard disk which is available as accessory kit called ATCA-7301-HD-SAS.

The following figure shows the location of the SAS connector.

Figure 3-10 Location of SAS Connector



The SAS hard-disk activity is shown via the HD LED at the RTM face plate.

The following connector pinout gives information on which signal is assigned to which pin.

Table 3-3 SAS Connector Pinout

Segment	Pin	Name
Primary Signal	S1	GROUND
Primary Signal	S2	RP+
Primary Signal	S3	RP-
Primary Signal	S4	GROUND
Primary Signal	S5	TP-
Primary Signal	S6	TP+
Primary Signal	S7	GROUND
Secondary Signal	S8	GROUND
Secondary Signal	S9	RS+
Secondary Signal	S10	RS-
Secondary Signal	S11	GROUND
Secondary Signal	S12	TS-
Secondary Signal	S13	TS+
Secondary Signal	S14	GROUND
Power	P1	V3P3
Power	P2	V3P3
Power	P3	V3P3
Power	P4	GROUND
Power	P5	GROUND
Power	P6	GROUND
Power	P7	VP5
Power	P8	VP5
Power	P9	VP5
Power	P10	GROUND
Power	P11	READY LED

Table 3-3 SAS Connector Pinout (continued)

Segment	Pin	Name
Power	P12	GROUND
Power	P13	VP12
Power	P14	VP12
Power	P15	VP12

4.1 Overview

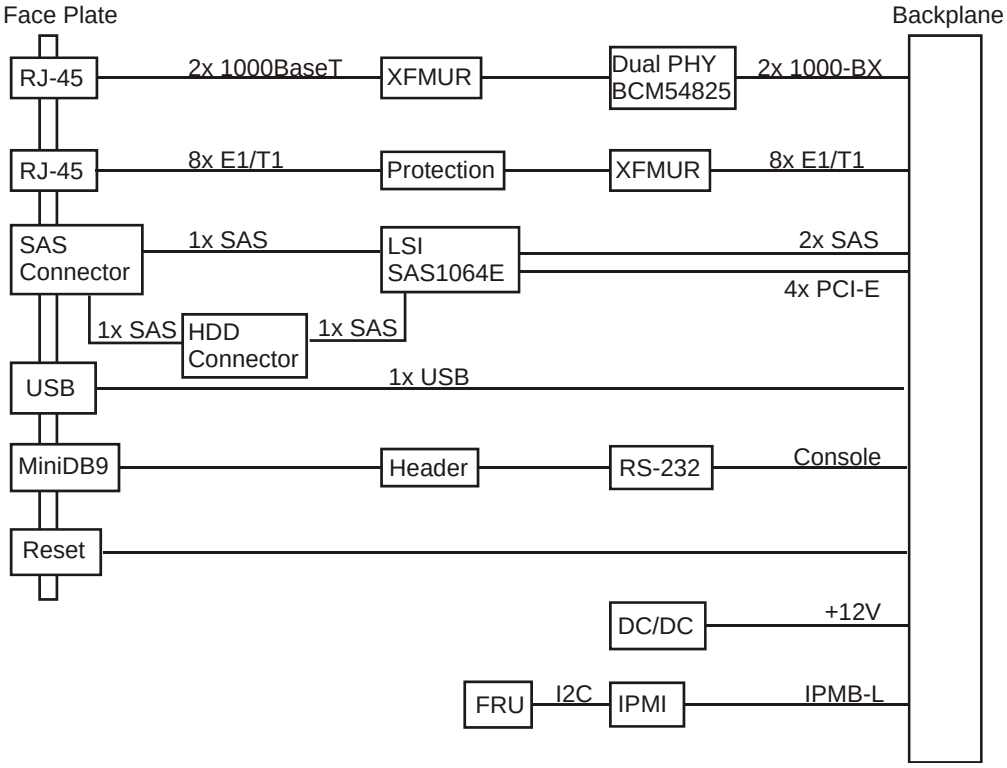
This chapter describes:

- Block diagram
- Mezzanine management controller

4.2 Block Diagram

The following figure shows the main functional blocks of the RTM.

Figure 4-1 Block Diagram for HD Variant



4.3 Mezzanine Management Controller

The RTM provides a Mezzanine Management Controller (MMC) based on the Pigeon Point Systems (PPS) building block which is fully compliant to the IPMI V 2.0 standard. The MMC is connected to the front blade's IPMC via IPMB-L.

The MMC provides several status sensors that are accessible via IPMI. These sensors are listed in the following table.

Table 4-1 IPMI Sensors Overview

Sensor Name	LUN	Sensor#	Sensor Type
+1.2V RTM	0x00	0x2D	Voltage
+12V HD RTM	0x00	0x33	Voltage
+12V RTM	0x00	0x34	Voltage
+2.5V RTM	0x00	0x2E	Voltage
+3.3V RTM	0x00	0x2F	Voltage
+5.0V RTM	0x00	0x2C	Voltage
temp in RTM	0x00	0x31	Temperature
temp out RTM	0x00	0x30	Temperature
BMC Watch RTM	0x00	0x32	Watchdog 2
Hotswap_RTM	0x00	0x03	PICMG 3.0: FRU HotSwap

For further details about these sensors as well as further IPMI-related information, refer to the *RTM-ATCA-7301: Control via IPMI Programmer's Reference*.

Related Documentation

A.1 Emerson Network Power - Embedded Computing Documents

The Emerson Network Power - Embedded Computing publications listed below are referenced in this manual. You can obtain electronic copies of Emerson Network Power - Embedded Computing publications by contacting your local Emerson sales office. For documentation of final released (GA) products, you can also visit the following website: http://www.emersonnetworkpowerembeddedcomputing.com > Solution Services > Technical Documentation Search. This site provides the most up-to-date copies of Emerson Network Power - Embedded Computing product documentation.

Table A-1 Emerson Publications

Document Title	Publication Number
RTM-ATCA-7301: Control via IPMI Programmer's Reference	6806800D93
ATCA-7301 Installation and Use	6806800D86
ATCA-7301: Control via IPMI Programmer's Reference	6806800D92
Basic Blade Services Software on ATCA-7301 Programmer's Reference	6806800G32

A.2 Related Specifications

For additional information, refer to the following table for related specifications. As an additional help, a source for the listed document is provided. Please note that, while these sources have been verified, the information is subject to change without notice.

Table A-2 Related Specifications

Organization	Document Title
PCI-SIG	PCI Local Bus Specification Revision 2.2 PCI-X Addendum to the PCI Local Bus Specification 1.0
PICMG	PICMG 3.0 Revision 2.0 Advanced TCA Base Specification PICMG 3.1 Revision 1.0 Specification Ethernet/Fiber Channel for AdvancedTCA Systems

Safety Notes

This section provides warnings that precede potentially dangerous procedures throughout this manual. Instructions contained in the warnings must be followed during all phases of operation, service, and repair of this equipment. You should also employ all other safety precautions necessary for the operation of the equipment in your operating environment. Failure to comply with these precautions or with specific warnings elsewhere in this manual could result in personal injury or damage to the equipment.

Emerson intends to provide all necessary information to install and handle the product in this manual. Because of the complexity of this product and its various uses, we do not guarantee that the given information is complete. If you need additional information, ask your Emerson representative.

The product has been designed to meet the standard industrial safety requirements. It must not be used except in its specific area of office telecommunication industry and industrial control.

Only personnel trained by Emerson or persons qualified in electronics or electrical engineering are authorized to install, remove or maintain the product.

The information given in this manual is meant to complete the knowledge of a specialist and must not be used as replacement for qualified personnel.

Keep away from live circuits inside the equipment. Operating personnel must not remove equipment covers. Only factory authorized service personnel or other qualified service personnel may remove equipment covers for internal subassembly or component replacement or any internal adjustment.

Do not install substitute parts or perform any unauthorized modification of the equipment or the warranty may be voided. Contact your local Emerson representative for service and repair to make sure that all safety features are maintained.

EMC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by Emerson could void the user's authority to operate the equipment. Board products are tested in a representative system to show compliance with the above mentioned requirements. A proper installation in a compliant system will maintain the required performance. Use only shielded cables when connecting peripherals to assure that appropriate radio frequency emissions compliance is maintained.

Operation

Product Damage
Surface of the Product
High humidity and condensation on the product surface causes short circuits.
Do not operate the product outside the specified environmental limits. Make sure the product is completely dry and there is no moisture on any surface before applying power.

Overheating and Product Damage
Operating the product without forced air cooling may lead to overheating and thus damage of the product.
When operating the product, make sure that forced air cooling is available in the shelf.

Installation

Damage of the Product and Additional Devices and Modules
Incorrect installation or removal of additional devices or modules may damage the product or the additional devices or modules.
Before installing or removing additional devices or modules, read the respective documentation.

Damage of Circuits
Electrostatic discharge and incorrect installation and removal of the product can damage circuits or shorten their life.
Before touching the product or electronic components, make sure that your are working in an ESD-safe environment.

Product Damage
Incorrect installation of the product can cause damage of the product.
Only use handles when installing/removing the product to avoid damage/deformation to the face plate and/or PCB.

Damage to the Product/Backplane or System Components
Bent pins or loose components can cause damage to the product, the backplane, or other system components.
Therefore, carefully inspect the product and the backplane for both pin and component integrity before installation.

RTM Damage
Installing the RTM with other blades than the ATCA-7301 may damage the RTM and the front blade.
Only install the RTM with the Emerson ATCA-7301 blade.

Date Loss
If you remove the RTM from a powered system, data that is in the process of being written to the hard disk located on the RTM may be lost.
Disconnect the RTM hard disk from OS services before removing the RTM from a powered system.

Emerson and our suppliers take significant steps to ensure there are no bent pins on the backplane or connector damage to the boards prior to leaving the factory. Bent pins caused by improper installation or by inserting boards with damaged connectors could void the Emerson warranty for the backplane or boards.

Cabling and Connectors

Product Damage
The RJ-45 connector(s) on the face plate are either twisted-pair Ethernet (TPE) or E1/T1 interfaces. Connecting an E1/T1 line to an Ethernet connector may damage the product.

- Make sure that TPE connectors near your working area are clearly marked as network connectors.
- Verify that the length of an electric cable connected to a TPE bushing does not exceed 100 m.
- Make sure the TPE bushing of the product is connected only to safety extra low voltage circuits (SELV circuits).

If in doubt, ask your system administrator.

Environment

Always dispose of used blades, system components and RTMs according to your country's legislation and manufacturer's instructions.

Sicherheitshinweise

Dieses Kapitel enthält Hinweise, die potentiell gefährlichen Prozeduren innerhalb dieses Handbuchs vorrangestellt sind. Beachten Sie unbedingt in allen Phasen des Betriebs, der Wartung und der Reparatur des Systems die Anweisungen, die diesen Hinweisen enthalten sind. Sie sollten außerdem alle anderen Vorsichtsmaßnahmen treffen, die für den Betrieb des Produktes innerhalb Ihrer Betriebsumgebung notwendig sind. Wenn Sie diese Vorsichtsmaßnahmen oder Sicherheitshinweise, die an anderer Stelle diese Handbuchs enthalten sind, nicht beachten, kann das Verletzungen oder Schäden am Produkt zur Folge haben.

Emerson ist darauf bedacht, alle notwendigen Informationen zum Einbau und zum Umgang mit dem Produkt in diesem Handbuch bereit zu stellen. Da es sich jedoch um ein komplexes Produkt mit vielfältigen Einsatzmöglichkeiten handelt, können wir die Vollständigkeit der im Handbuch enthaltenen Informationen nicht garantieren. Falls Sie weitere Informationen benötigen sollten, wenden Sie sich bitte an die für Sie zuständige Geschäftsstelle von Emerson.

Das System erfüllt die für die Industrie geforderten Sicherheitsvorschriften und darf ausschließlich für Anwendungen in der Telekommunikationsindustrie und im Zusammenhang mit Industriesteuerungen verwendet werden.

Einbau, Wartung und Betrieb dürfen nur von durch Emerson ausgebildetem oder im Bereich Elektronik oder Elektrotechnik qualifiziertem Personal durchgeführt werden. Die in diesem Handbuch enthaltenen Informationen dienen ausschließlich dazu, das Wissen von Fachpersonal zu ergänzen, können dieses jedoch nicht ersetzen.

Halten Sie sich von stromführenden Leitungen innerhalb des Produktes fern. Entfernen Sie auf keinen Fall Abdeckungen am Produkt. Nur werksseitig zugelassenes Wartungspersonal oder anderweitig qualifiziertes Wartungspersonal darf Abdeckungen entfernen, um Komponenten zu ersetzen oder andere Anpassungen vorzunehmen.

Installieren Sie keine Ersatzteile oder führen Sie keine unerlaubten Veränderungen am Produkt durch, sonst verfällt die Garantie. Wenden Sie sich für Wartung oder Reparatur bitte an die für Sie zuständige Geschäftsstelle von Emerson. So stellen Sie sicher, dass alle sicherheitsrelevanten Aspekte beachtet werden.

EMV

Das Produkt wurde in einem Emerson Standardsystem getestet. Es erfüllt die für digitale Geräte der Klasse A gültigen Grenzwerte in einem solchen System gemäß den FCC-Richtlinien Abschnitt 15 bzw. EN 55022 Klasse A. Diese Grenzwerte sollen einen angemessenen Schutz vor Störstrahlung beim Betrieb des Produktes in Gewerbe- sowie Industriegebieten gewährleisten.

Das Produkt arbeitet im Hochfrequenzbereich und erzeugt Störstrahlung. Bei unsachgemäßem Einbau und anderem als in diesem Handbuch beschriebenen Betrieb können Störungen im Hochfrequenzbereich auftreten.

Wird das Produkt in einem Wohngebiet betrieben, so kann dies mit großer Wahrscheinlichkeit zu starken Störungen führen, welche dann auf Kosten des Produktanwenders beseitigt werden müssen. Änderungen oder Modifikationen am Produkt, welche ohne ausdrückliche Genehmigung von Emerson durchgeführt werden, können dazu führen, dass der Anwender die Genehmigung zum Betrieb des Produktes verliert. Boardprodukte werden in einem repräsentativen System getestet, um zu zeigen, dass das Board den oben aufgeführten EMV-Richtlinien entspricht. Eine ordnungsgemäße Installation in einem System, welches die EMV-Richtlinien erfüllt, stellt sicher, dass das Produkt gemäß den EMV-Richtlinien betrieben wird. Verwenden Sie nur abgeschirmte Kabel zum Anschluss von Zusatzmodulen. So ist sichergestellt, dass sich die Aussendung von Hochfrequenzstrahlung im Rahmen der erlaubten Grenzwerte bewegt.

Warnung! Dies ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen. In diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen durchzuführen.

Betrieb

Beschädigung des Produktes
Hohe Luftfeuchtigkeit und Kondensat auf der Oberfläche des Produktes können zu Kurzschlüssen führen.
Betreiben Sie das Produkt nur innerhalb der angegebenen Grenzwerte für die relative Luftfeuchtigkeit und Temperatur. Stellen Sie vor dem Einschalten des Stroms sicher, dass sich auf dem Produkt kein Kondensat befindet .

Überhitzung und Beschädigung des Produktes
Betreiben Sie das Produkt ohne Zwangsbelüftung, kann das Produkt überhitzt und schließlich beschädigt werden.
Bevor Sie das Produkt betreiben, müssen Sie sicher stellen, dass das Shelf über eine Zwangskühlung verfügt.

Installation

Beschädigung des Produktes und von Zusatzmodulen
Fehlerhafte Installation von Zusatzmodulen, kann zur Beschädigung des Produktes und der Zusatzmodule führen.
Lesen Sie daher vor der Installation von Zusatzmodulen die zugehörige Dokumentation.

Beschädigung von Schaltkreisen
Elektrostatische Entladung und unsachgemäßer Ein- und Ausbau des Produktes kann Schaltkreise beschädigen oder ihre Lebensdauer verkürzen.
Bevor Sie das Produkt oder elektronische Komponenten berühren, vergewissern Sie sich, daß Sie in einem ESD-geschützten Bereich arbeiten.

Beschädigung des Produktes
Fehlerhafte Installation des Produktes kann zu einer Beschädigung des Produktes führen.
Verwenden Sie die Handles, um das Produkt zu installieren/deinstallieren. Auf diese Weise vermeiden Sie, dass das Face Plate oder die Platine deformiert oder zerstört wird.

Beschädigung des Produktes, der Backplane oder von System Komponenten
Verbogene Pins oder lose Komponenten können zu einer Beschädigung des Produktes, der Backplane oder von Systemkomponenten führen.
Überprüfen Sie daher das Produkt sowie die Backplane vor der Installation sorgältig und stellen Sie sicher, dass sich beide in einwandfreien Zustand befinden und keine Pins verbogen sind.

Beschädigung des Produktes
Wenn Sie das RTM mit anderen Blades als dem ATCA-7301 installieren, wird

das RTM beschädigt.
Installieren Sie das RTM deshalb nur zusammen mit dem Emerson ATCA-7301 Front Blade.

Datenverlust
Wenn Sie das RTM aus einem laufenden System entfernen, können Daten, die gerade auf die Festplatte des RTMs geschrieben werden, verloren gehen.
Trennen Sie deshalb die Festplatte des RTMs von den Services des Betriebssystems, bevor Sie das RTM aus einem laufenden System entfernen.

Emerson und unsere Zulieferer unternehmen größte Anstrengungen um sicherzustellen, dass sich Pins und Stecker von Boards vor dem Verlassung der Produktionsstätte in einwandfreiem Zustand befinden. Verbogene Pins, verursacht durch fehlerhafte Installation oder durch Installation von Boards mit beschädigten Steckern kann die durch Emerson gewährte Garantie für Boards und Backplanes erlöschen lassen.

Kabel und Stecker

Beschädigung des Produktes
Bei den RJ-45-Steckern, die sich an dem Produkt befinden, handelt es sich entweder um Twisted-Pair-Ethernet (TPE) oder um E1/T1-Stecker. Beachten Sie, dass ein versehentliches Anschließen einer E1/T1-Leitung an einen TPE-Stecker das Produkt zerstören kann.

- Kennzeichnen Sie deshalb TPE-Anschlüsse in der Nähe Ihres Arbeitsplatzes deutlich als Netzwerkanschlüsse.
- Stellen Sie sicher, dass die Länge eines mit Ihrem Produkt verbundenen TPE-Kabels 100 m nicht überschreitet.
- Das Produkt darf über die TPE-Stecker nur mit einem Sicherheits-Kleinspannungs-Stromkreis (SELV) verbunden werden.

Bei Fragen wenden Sie sich an Ihren Systemverwalter.

Umweltschutz

Entsorgen Sie alte Batterien und/oder Blades/Systemkomponenten/RTMs stets gemäß der in Ihrem Land gültigen Gesetzgebung und den Empfehlungen des Herstellers.

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